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IS 1448-89 (1979): Methods of test for petroleum and its products, Part 89: Test for thermal stability of lubricating greases [PCD 1: Methods of Measurement and Test for Petroleum, Petroleum Products and Lubricants]

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Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

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BRUTUM FULMEN

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IS : 1448 [P : 89] - 1979
Adopted : 30 October 1979

(Reaffirmed 2002)

Indian Standard

METHODS OF TEST FOR PETROLEUM AND ITS PRODUCTS

[P : 89]

TEST FOR THERMAL STABILITY OF LUBRICATING GREASES

(First Reprint MARCH 1985)

UDC 621·892 : 543·876

1. SCOPE

1.1 This standard prescribes a procedure for measuring the tendency of lubricating greases to separate oil at elevated temperature under static conditions.

2. APPARATUS

2.0 The following apparatus shall be required.

2.1 Cone — made out of woven nickel wire cloth with uniform aperture of 250 microns, and conforming to the dimensions shown in Fig. 1.

2.2 Beaker — of 200 ml capacity, tall-form, without a pouring spout and equipped with a close-fitting cover with a hook on the underside for suspending the cone.

2.3 Oven — electrically heated, gravity convection, maintained at a temperature of 100°C.

3. PROCEDURE

3.1 Weigh about 10 g of the test grease, accurately to the nearest 0·1 g, into the cone. Make exposed surface of the grease smooth and convex to prevent trapping of free oil. Then suspend the cone in the clean, tared beaker of known mass by means of the wire handle and hook on the underside of the cover. Place the cone and beaker in the oven. At the

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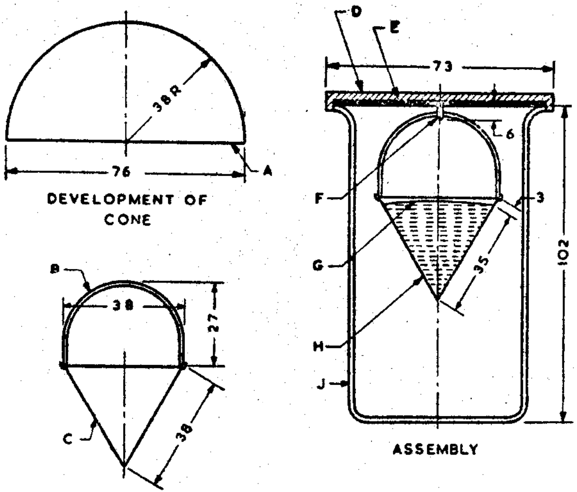
end of 30 hours, remove the assembly from the oven and allow to cool to room temperature. When the assembly has reached room temperature, lift the cone from the beaker and gently tap against the inside of the beaker to remove any oil adhering to the tip of the cone. Weigh the beaker with the oil which has separated.



DEVELOPMENT OF CONE

ASSEMBLY

DETAIL OF CONE

A = silver solder along this line
B = 20-gauge nickel or stainless steel wire
C = nickel or stainless steel wire cloth of 251 microns aperture
D = 2·4 mm thick copper lid
E = 1·6 mm rubber gasket
F = 16-gauge copper wire hook
G = convex surface formed with spatula to prevent trapping of free oil
H = grease sample
J = 200 ml beaker without pouring spout

All dimensions in millimetres.

FIG. 1 APPARATUS FOR TESTING THERMAL STABILITY

4. CALCULATION

4.1 Thermal stability, percent loss in mass $= \dfrac{100\,(A-B)}{M}$

where

A = mass, in g, of the beaker containing the separated oil;
B = mass, in g, of the beaker; and
M = mass, in g, of the material taken for the test.